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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,067	02/11/2002	Tony Mule'	62004-1970	6679

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EXAMINER

ARTMAN, THOMAS R

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 11/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/074,067

Applicant(s)

MULE' ET AL.

Examiner

Thomas R Artman

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 14-27 is/are pending in the application.
- 4a) Of the above claim(s) 20-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 14-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

Newly submitted claims 20-27 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the newly submitted claims define a patentably distinct species of a waveguide that has a sacrificial layer that engages a portion of a waveguide core, and the originally elected invention has an air-gap cladding layer that engages a portion of a waveguide core. There are no generic claims.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 20-27 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Objections

Claim 4 is objected to because of the following: antecedent basis is lacking for the “second waveguide” in line 2. The examiner assumes that it is to be the “second waveguide cladding,” and it shall be examined upon these merits. Appropriate correction is required.

Claim 5 is objected to because of the following: antecedent basis is lacking for the “second waveguide” in line 2. The examiner assumes that it is to be the “second waveguide core,” and it shall be examined upon these merits. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 5, 6, 14 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Horiguchi (US 3,950,073).

Regarding claims 1 and 6, Horiguchi discloses an optical waveguide (Fig. 1) that has:

- 1) a waveguide core (item 1),
- 2) an air-gap cladding (item 3) engaging a portion of the waveguide core, and
- 3) an overcoat layer (item 2) engaging a portion of the air-gap cladding.

With regards to claim 5, Horiguchi discloses, in Fig. 4, a waveguide having a waveguide core (item 1-1) and a second waveguide core (item 1-2) with the air-gap cladding (item 3) engaging a portion of the second waveguide core.

With respect to claims 14 and 17, Horiguchi's overcoat layer is made of silicon dioxide (col.2, lines 49-56).

Claims 1-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Kimerling (US 2002/0076188).

Regarding claims 1 and 6, Kimerling discloses an optical waveguide (Figs. 1, 2A, 2B and 5B), including:

- 1) a waveguide core (item 102),
- 2) an air-gap cladding (item 104) engaging a portion of the waveguide core, and
- 3) an overcoat layer (item 108) engaging a portion of the air-gap cladding.

With respect to claim 2, Kimerling discloses a coupling element included in the waveguide core (section 2 of Fig. 1), and the air-gap cladding engages a portion of the at least one coupling element.

With respect to claim 3, Kimerling discloses a coupling element disposed adjacent to the waveguide core (section 2 of Fig. 1).

In regards to claim 4, Kimerling discloses a second waveguide cladding (item 204 of Fig. 2A) adjacent to the waveguide core, where the air-gap cladding engages a portion of the second waveguide cladding.

With regards to claim 5, Kimerling discloses a second waveguide core (wider core beyond the taper regions in Fig. 1), where the air-gap cladding engages a portion of the second waveguide core.

Claims 1, 6 and 14-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Wojnarowski (US 5,737,458).

Regarding claims 1 and 6, Wojnarowski discloses an optical waveguide (Fig.9), including:

- 1) a waveguide core (item 82),
- 2) an air-gap cladding (item 106) engaging a portion of the waveguide core, and
- 3) an overcoat layer (item 90) engaging a portion of the air-gap cladding.

With respect to claims 14-19, the overcoat layer is made out of a polyimide (col.8, lines 28-31).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horiguchi.

Though coupling structures are not explicitly shown by Horiguchi, it would have been obvious to one of ordinary skill in the art at the time the invention was made that optical fibers are used with coupling devices in order to couple between other optical fibers or to optical transceivers, etc. Without a coupling structure for coupling light into or out of the fiber, the waveguide would be useless.

Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horiguchi and in view of Wojnarowski.

Horiguchi does not specifically disclose the inclusion of the waveguide with microelectronic, integrated optical or photonic crystal devices.

Wojnarowski shows an optical fiber coupled to such devices in Figs.2-8, item 58.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to connect a waveguide to such devices because they are used to generate/detect optical signals that propagate in the waveguide, such as laser diodes and photodetectors. This is standard in the art.

Response to Arguments

Applicant's arguments filed October 27th, 2003, have been fully considered but they are not persuasive. The applicant asserts that Horiguchi and Kimerling do not teach or suggest an overcoat layer engaging a portion of the air-gap cladding. The examiner respectfully disagrees. As stated in the rejections of claims 1 and 6 above, both Horiguchi and Kimerling disclose an overcoat layer. In order to have an air-gap, there must be an overcoat layer to define the gap. Accordingly, Kimerling is considered to show an overcoat layer, item 108 of Fig.2A, for example. Horiguchi shows a similar overcoat layer, item 2 of Fig.1, for example.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas R Artman whose telephone number is (703) 305-0203. The examiner can normally be reached on 8am - 5:30pm Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on (703) 308-4858. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Thomas R. Artman
Patent Examiner
November 20, 2003



EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER